**Development of Polymers by the CSIR**

*385. SHRI AJIT P. K. JOGI: Will the PRIME MINISTER be pleased to state,

(a) whether a special polymer, an abrasive substance with great fire-proofing qualities, has been developed by one of the CSIR laboratories;

(b) if so, what are the details thereof;

(c) whether this polymer would be useful for fire proofing rockets and space craft; and

**(d) what are the other useful polymers** which have been developed by the CSIR laboratories during the last three years?

THE MINISTER OF STATE IN THE MINISTRY OF SCIENCE AND **TECHNOLOGY AND THE MINISTER OF STATE IN THE DEPARTMENTS** OF OCEAN DEVELOPMENT, ATOMIC **ENERGY, ELECTRONICS** AND SPACE (SHRI K. R. NARAYANAN): (a) to (d) A Statement is **laid on the Table of the House.**

**Statement**

(a) to (c) Yes, Sir. The Regional Research Laboratory, Trivandrum has developed at the laboratory level a special ablative polymer with properties which can withstand high temparatures. This has possible **potential for use in applications, such as, heat shield of rockets and space** crafts. Anorin-38, a fire retardant polymer resin based on cashewnut shell liquid is the starting material for the preparation of this ablative polymer. The process for the preparation of Anorin-38 has been scaled up in the laboratory in collaboration with Vikram Sarabhai Space Centre, Trivandrum The know-how **for Anarin-38 is likely to be made** available for commercialisation soon.

(d) The other useful polymers developed by CSIR Laboratories during the past three years are—Water absorbent polymer (Jalshakti) and Sulfochlorinated Polyethelene (SCPE) by National Chemical Laboratory, Pune, FIRJ-B flow improver for crude oil by Regional Research Laboratory, Jorhat and Aramid Fibre by National Aeronautical Laboratory, Bangalore.

SHRI AJIT P K. JOGI: The hon. **Minister's reply indicates that a large** number of polymers have been developed by our CSIR Laboratories. The problem, however, is that the useful R&D which is being done in our CSIR Laboratories does not really get transferred to the fields quick enough. Normally, it takes a lot of time and sometimes it does not even reach the proper quarters. I would, therefore like to know if some useful steps are being taken to ensure **that whatever, useful R&D is being done by our CSIR Laboratories** actually gets transferred to the field level quick enough and also reaches the proper quarters.

SHRI K R. NARAYANAN: Sir. this is a much broader question than what the Member has originally asked. I would like to say with regard to polymers that they are not "abrasive" it is mentioned in the question but abuative polymers. Polymer seems to be somewhat more polite and not abrasive And some of these polymers have been already upscaled at the laboratory and pilot plants also have been established And some of them have been licensed for commercial production Therefore, **it is not that they are not in the process** of being utilised. For example, there is the Jalshakti polymer. This is already under licence for production of about 5,000 tonnes per annum **and the investment would be** about Rs. 40 crores. **With regard** to the other polymers which have **been developed and the other products and processes developed** by our research laboratories, a number of them have been actually productionised and the earnings are about 650 crores of rupees a year. Therefore, there is, and there will be **considerable application of the research work already being done.**

SHRI AJIT P. K. JOGI: Mr. Chairman, Sir, the reply also indicates that the effort of the CSIR laboratories in the country is really dispersed over a very large area. They are not concentrated on certain selected areas and the consequence is that the effort gets diluted and is not as useful to the country as it should be. I would therefore like to know if something would be done to identify selective areas where the research of CSIR Laboratories would be confined. I would also further like to know as to what is being done in regard to the recommendations of the Abid Hussain Committee which had gone into in great details about the functioning of the CSIR Laboratories. We were last informed that the Government was considering those recommendations. I would, therefore, like to know as to the stage at which these recommendations are pending.

SHRI K. R NARAYANAN: Sir. I can answer this question but I don't think that falls within the ambit of the main question. It is about polymers developed by the CSIR Laboratories. But the supplementary is about the Abid Hussain Committee...

MR. CHAIRMAN: That is a separate thing.

SHRI AJIT P. K. JOGI: I asked about the large areas on which the CSIR Laboratories are concentrating..

MR CHAIRMAN: CSIR is a whole thing It is not a part of this question.

SHRI K R. NARAYANAN: Not that I cannot answer but this will not be a part of the main question.

SHRI VISHWA BANDHU GUPTA: Mr. Chairman, Sir, I would like to ask the hon. Minister as to what are the high temperatures to which these polymers are retardant or resistant and whether these can be applicable to the general fires and fire-fighting in the cities in tall buildings and whether it will be possible to have fire-proof fabric materials, for example to make tents and things of that type Will the application be only for space or for this also?

SHRI K. R. NARAYANAN: They can be used as a fire-retardant. But I don't think they have been developed to a stage where it can be applicable to such minute purposes. They are now being used for aerospace purposes. And also they can be used as a lining for brakes. This is one of the practical uses to which it is put. And I understand that the mechanical improvement of the material as a result of the use of this polymer is about 40 per cent in brakes. It can be used as an adhesive. For various purposes. it can be used But actually for fire-fighting, I am not sure they have been applied.

DR. G. VIJAYA MOHAN REDDY: Mr. Chairman, Sir, 40 per cent of the people live below the poverty line; it is quite well known. The reason is that the programmes connected with alleviation of poverty are implemented very tardily and unsatisfactorily. (*Interruptions*) Specifically, I am asking is the Centre thinking. . (*Interruptions*) Whatever it may be, please listen first. If you do not have tolerance just like your Buta Singh . .is the Centre thinking of taking over development works in the States?

PROF. B. RAMACHANDRA RAO: Mr Chairman, Sir these special polymers, which were referred to in this question, are they useful as a fire-retarding or fire resisting material for thatched huts, because annually several crores of thatched huts are catching fire and there is tremendous loss. I wonder whether the Minister thinks that this is useful and economical for fire-proofing thatched huts. The second part of the question also refers to the fire-proofing of rockets and spacecraft. I wonder whether this material will

be useful for the coating of antennas or coating of rockets for which normally they use silicon rubber, or silicon impregnated polymers whether this is the same material?

SHRI K. R. NARAYANAN: This is not the same material as silicon impregnated one. This is reaction product from cashewnut shell fluid and phosphoric acid and it is not the same as silicon impregnated material. I think these applications may eventually occur but it has not been developed to that stage so far. Some of the other labs of the CSIR have been working on those polymers.

**Resource gap in the plan**

*386. SHRI A. G. KULKARNI: Will the Minister of PLANNING be pleased to state:

(a) whether Government's attention has been drawn to reports that there is a resource gap of Rs. 16000 crores in the present plan and if so, whether the plan outlay would be curtailed to avoid deficit financing; and

(b) whether the Planning Commission has taken into consideration internal and external debt servicing and a parallel black economy in increasing the burden to find resources and if so, what steps Government propose to take in this regard?

THE MINISTER OF STATE IN THE THE MINISTRY OF PLANNING AND THE MINISTER OF STATE IN THE MINISTRY OF PROGRAMME IMPLEMENTATION (SHRI SUKH RAM): (a) Some reports have appeared in the press indicating resource gap for the Seventh Plan. These are, however, not based on any official release by the Planning Commission. Since the Mid-Term Appraisal of the Seventh Plan is currently underway the question of curtailment in the Plan outlay does not arise.

(b) The exercise on Mid-Term Appraisal does take into account the debt servicing liability and the impact on revenues on account of measures taken from time to time to prevent the growth of black money. Further appropriate measures will be considered in the light of the reassessed resources after the Mid-Term Appraisal of the Seventh Plan is completed.

SHRI A. G. KULKARNI: Mr. Chairman, Sir, may I inform the hon. Minister that whether the Plan appraisal has been made by the Planning Commission or not, various research groups in this country like the policy planning group or the economic policy group, have already made the Plan appraisal. Apart from that appraisal is also not necessary when it is seen that about 265 districts are affected, 28 crores of population is affected and 40 per cent of the people are facing the drought problem. So, in view of this, whether it is a fact that the Government feels that indications in 1987-88 are, up to September 3, that growth will not be exceeding 3 per cent, and the drought expenditure, which has to be curtailed, has reached about 34.7 per cent of the G.D.P. In view of all these facts, how far the hon. Minister is correct in taking the view that the mid-term appraisal will be there to see whether the Plan should be curtailed or need not be curtailed etc I think, this is a very complacent view. These things are obvious to the people, which are being faced by the people, whether in the urban or in the rural areas. The pinch is there already. I would like to request you Instead of doing like this, keeping your head under the sand, please come out as to what will be the real impact and whether the Plan will be affected; if so, to what extent.

The second point I would like to know from you is; you say that debt servicing is not taken into consideration.

SHRI P. SHIV SHANKER: It is taken into consideration.